

AMENDMENTS TO THE SPECIFICATION

On page 1, before paragraph 1, line 1, add the heading,

BACKGROUND OF THE INVENTION

On page 2, before paragraph 1, line 1 and before the amendment adding the heading "Detailed Description of the Invention", add,

BRIEF DESCRIPTION OF THE DRAWINGS

Various embodiments are illustrated by way of example and not by way of limitation in the figures of the accompanying drawings in which like references indicate similar elements. It should be noted that different references to "an," "one," or "various" embodiments in the disclosure are not necessarily to the same embodiment, and such references mean at least one.

The Figure is a cross-sectional view of a first embodiment of the invention.

On page 2, before paragraph 1, line 1, add the heading,

DETAILED DESCRIPTION OF THE INVENTION

On page 2, paragraph 1, beginning on line 1,

According to the invention there is provided apparatus for monitoring flow of a fluid through a carrier such as a pipe, pipe-line, conduit or the like for the fluid, comprising a valve 16 and an electronic means for determining flow of fluid past the valve 16.

On page 2, paragraph 2, beginning on line 5,

Preferably, the electronic means may be connected electronically, permanently or temporarily, with the valve 16 so that the operation of the valve 16 as a valve *per se* is not affected, and the flow direction and flow rate may be determined.

On page 2, paragraph 3, beginning on line 8,

Using the invention it is possible to provide a means of manufacturing a valve 16 such that its subsequent use as a flow measuring device is simplified compared with existing practice. Stated in another way a pipeline valve can be made to function as a flow meter.

On page 2, paragraph 4, beginning on line 12,

According to another aspect of the present invention, there is provided a means of converting a valve 16 for use as a flow meter, comprising:

- (a) providing information regarding the optimal placement of tappings 14 for differential pressure measurement;
- (b) providing means of determining the current position of the valve ~~mechanism~~ 16 with sufficient accuracy to allow a desired flow measurement 12 accuracy to be achieved; and
- (c) providing a calibration surface or a means of calculating the flow rate 12 from the measured differential pressure and valve position information.

On page 2, paragraph 5, beginning on line 22 and commencing on page 3,

For converting a valve 16 for use as a flow meter, there may be modifications to the valve housing 10 to simplify the attachment of a differential pressure measuring device. These modifications may be marking the optimal tapping locations 14 e.g. screw threaded holes into the housing on the valve housing, provision of a removable plug at each optimal tapping location, or provision of a suitably positioned valve or valves which in turn may be capable of accepting a push fit connector such that the or each valve is opened when the connector is in place, and automatically ~~closes~~ closed when the connector is removed.

On page 3, paragraph 2, beginning on line 4,

Suitably there may be means for determining the current position of the valve ~~mechanism~~ 16 with sufficient accuracy to allow the desired flow measurement 12 accuracy to be achieved.

On page 3, paragraph 3, beginning on line, 7,

There may preferably be a calibration surface or a means of calculating the flow rate 12 from the measured differential pressure and valve position information, through or past the valve 16.

On page 3, paragraph 4, beginning on line 10, and commencing on page 4,

Again a means of converting the valve 16 for use as a flow meter, may comprise one or more of the following:

- (a) provision of a differential pressure sensing elements of or within the valve housing 10, arranged so as to be capable of measuring the differential pressure across the valve 16. This pressure sensing element may be provided with a means of being interrogated when required; the element may be remotely positioned with respect to the valve means;
- (b) provision of equipment capable of interrogating the differential pressure sensor and making the result available for use in flow calculation. This equipment may incorporate a means of calculating the flow rate, given information on the valve position and valve type;
- (c) a means of determining the current position of the valve ~~mechanism~~16, with sufficient accuracy to allow the desired flow measurement 12 accuracy to be achieved; and
- (d) a calibration surface or a means of calculating the flow rate 12 from the measured differential pressure and valve position information.

On page 4, paragraph 3, beginning on line 16,

The valve 16 may comprise any kind of valve that is capable of partly restricting the flow of fluid through it.